National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas

Space stepping

Participants in the Summer Teacher Enhancement Program spend time at JSC. Story on Page 3.

Booster stacking

Work was completed this week on *Atlantis*' new solid rocket boosters. Photo on Page 4.

Space News Roundup

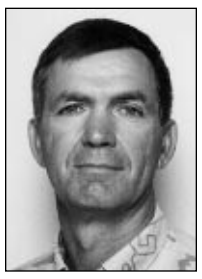
Vol. 35 **August 2, 1996** No. 30

JSC worker judges games in Atlanta

A sport as old as the Olympic games will have a JSC engineer judging the athletes.

Archery expert Rick Stonebraker—a four-time national champion and two-time world finalist—was chosen to judge the bow and arrow competition this week in Atlanta. His 20 years of experience in the sport earned him the spot as judge and official score-keeper during the Olympics.

Stonebraker, a quality engineer who works for Raytheon supporting the Safety Reliability and Quality Assurance Directorate, has worked at JSC since 1990, but his first love is archery.



Stonebreaker

"Ever since I was a kid, I wanted to be in the Olympics," Stonebraker said. "I would prefer to be in competition, but at least I will be involved there."

His qualifications, experiences and championships are numerous. Having earned more than 25 championship titles in the last 20 years, his most memorable highlight was being elected by his peers to the board of governors of the National Archery Association. He is in the middle of a four-year term.

Stonebraker has even brought archery competition to JSC. He organized the 1991 world championship trials at Rocket Park. Top Americans vied for four spots on the USA team that competed in Krakow, Poland.

Stonebraker tried out for the Olympic team but failed to hit the mark.

"My motto is never quit as I prepare for the 2000 Olympic Games in Australia," he said. "I will try not to get totally encompassed on goals, but place emphasis on the tasks that it takes to reach those goals. The destination is not very rewarding if you fail to enjoy the journey."

Archery has ancient roots dating back at least 50,000 years. It was one of the original sports in the first Olympic games. While archery was removed from the Olympic lineup between 1920 and 1972, it has come back to the games and was updated in 1996 with a change in the competition format. Archery is one of the few sports where size and age are not factors. Archers use fiberglass-coated bows, synthetic strings and graphite arrows and rely on skill to win.

JSC Photos by Mark Sowa

SPACE STATION TRAINING—STS-80 Astronauts Tammy Jernigan and Tom Jones practice EVA techniques in the Weightless Environment Training Facility to prepare for two six and a half hour long space walks to test out their ability to remove, manipulate and relocate space station Orbital Replacement Units. Above: Jernigan stands on a portable work platform mounted on the robot arm and uses a pistol grip tool with extension to remove a battery and carrier mounted on the side wall of the shuttle's cargo bay. With the carrier removed, both Jernigan and Jones will demonstrate mass-handling techniques as they move the hardware through a series of pre-determined positions. Below: Jones, is working with the ORU transfer device, or crane, which can be used to move ORUs during station assembly.

Atlantis rolls to OPF to await booster mating

By James Hartsfield

While stacking operations continued on a replacement set of solid rocket boosters, *Atlantis* was detached from its original boosters this week and moved back to a Orbiter Processing Facility where it will remain until mid-August.

In Kennedy Space Center's Vehicle Assembly Bldg. Thursday, *Atlantis* was lifted off of the original boosters and external tank and set down horizontally before being rolled over to the Bay 3 processing hangar. Meanwhile, technicians stacking the new set of boosters for *Atlantis* encountered a problem when the joint connecting the right aft center and right forward center segments failed a leak test. The segments were destacked and the O-ring seals replaced, removing a loose applicator brush bristle that apparently had caused the problem. The segments were then restacked and rechecked with no problems.

The problem did not significantly delay the stacking operations, and they were scheduled to be completed by the end of the week, keeping *Atlantis*' preparations on track for a possible launch as early as Sept. 12 on STS-79. Milestones in future preparations include attaching the external fuel tank to the replacement boosters and moving *Atlantis* back to the VAB to be attached to the new stack on Aug. 13.

Atlantis is planned to be rolled out to Launch Pad 39A on Aug. 20. The crew of STS-79—Commander Bill Readdy, Pilot Terry Wilcutt and Mission Specialists Tom Akers, Jay Apt, Carl Walz and John Blaha, who will replace astronaut Shannon Lucid aboard the Russian Mir Space Station—will participate in a dress rehearsal countdown at KSC on Aug. 27.

Elsewhere, *Endeavour* was ferried piggyback aboard the 747 Shuttle Carrier Aircraft from KSC to Palmdale, Calif., this week to begin a nine-month period of modifications and maintenance, including changes that will prepare *Endeavour* for the first International Space Station

Please see ***ENDEAVOUR***, Page 4

Mir crew gets supplies; continues research

In her 19th week aboard the Russian Mir Space Station, Cosmonaut Researcher Shannon Lucid and her crewmates, Commander Yuri Onufrienko and Flight Engineer Yuri Usachev, await the Russian supply capsule.

Progress—scheduled to reach Mir on Saturday—carries with it a special package for Lucid, put together after her stay on Mir was extended for six weeks. Specialty items included in the additional supplies requested by Lucid include books, M&Ms, twinkies and cheese pretzels.

In an interview last Thursday, Lucid made it clear that she was planning to keep busy during her extra time in space.

"I am still finishing up the United States experiments that we were doing, and then we're going to start in on the experiments that were scheduled to be started on the next segment," Lucid said. "I'll be pretty busy until the time I come home."

The extra time is allowing Lucid to collect extra samples from some of her experiments, producing more comprehensive data. Last week, Lucid continued work with the Candle Flames in Microgravity Experiment, using several spare sets of candles as part of the extension of her research. Researchers on Earth also provided Lucid with ways to change the experiment, giving investigators additional insight into the complicated physiochemical process of combustion.

Lucid has burned a total of 79 candles up in space, which surpasses the original plan based on a total of only 60 candles. In Thursday's interview, Lucid describes what she sees when a candle burns in microgravity.

"I have a whole series of different sizes of candles and we're lighting them and then we're videotaping and taking pictures and looking to see how the flame burns and it burns quite differently up here in a microgravity environment than it does down on Earth," Lucid said. "The way the flame looks is like a little blue igloo sitting right on top of the wick."

Experiments on the study of the Mir environment and its effects on sensitive microgravity experiments also continued in conjunction with the CFM experiment, as data from the Space Acceleration Measurement Systems and the Enhance Dynamic Load Sensors was collected.

Ultimately, Lucid's work, as well as the work of those who will follow her, is done in preparation for building and living on the International Space Station, and Lucid is excited about that station's future.

"I have been very impressed with the way that things have been working here on Mir," Lucid said. "I am not a very patient person, and I wish that we could go a little faster in getting the space station built, and I think the Russians are going to be good partners to have."

The spirit of international cooperation, which is being displayed in orbit now and will be required to build the International Space Station, has

Please see **BLAHA**, Page 4

Security to issue new vehicle decals

The JSC Security Branch will issue new vehicle decals this month to all permanently badged civil service and contractor employees.

Employees may request a maximum of three decals by presenting a completed JSC Form 1572, Vehicle Registration Record. These forms are available at the badge offices in Bldgs. 30, 110, the reception desk in Bldg. 1 and contractor security offices. Completing the JSC Form 1572 in advance will expedite the issuance of new decals. A valid permanent NASA or JSC badge and driver's license will be required to obtain new decals. Vehicle information required for registration includes year, make, model, color, license plate number and state in which vehicle is registered.

Security will be available in several building lobbies during the month of August to issue new decals. Decals will be issued from 8 a.m.-4 p.m. at each of the following locations. Employees may obtain new decals in Bldg. 1, Aug. 5; Bldg. 4N and Bldg. 4S breezeway, Aug. 6; Bldg. 16, Aug. 7; Bldg. 30, Aug. 8; Bldg. 419, Aug. 9; Bldg. 32, Aug. 12; Bldg. 31, Aug. 13; Bldg. 45, Aug. 14; and Bldg. 227, door 2, Aug. 15. Security will be available at Ellington Field in Bldg. 273 breakroom on Aug. 16.

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New decals also will be available at Bldg. 110 from 7:30 a.m.-5 p.m., beginning Aug. 5 Monday-Thursday and from 7:30 a.m.-noon on Friday. The current vehicle decals do not have to be returned when new decals are issued, but they must be scraped off and destroyed before applying the new decal. Effective Sept. 1, current decals will be obsolete. After that date, personnel will no longer be able to show a badge to gain entry into JSC and will need to go to Bldg. 110 to obtain a vehicle decal or temporary pass. For more information, call x32112.